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عنوان مقاله:

PREDICTION OF SONIC LOG USING ADAPTIVE NEURO FUZZY INFERENCE SYSTEM

محل انتشار:

ششمین همایش فرامنطقه ای پیشرفتهای نوین در علوم مهندسی (سال: 1392)

تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

Well logging is an important operation in petroleum production industry which is done during or afterdrilling. There are a lot of parameters which recorded during in well logging, But because of operationalcondition and financial reasons, sometimes it is not probable to record all logs. Sonic log is one of theimportant parameters in porosity evaluation which is sometimes neglected because of referred reasons. Inthese situations, a method to predict this parameter will be very useful. Today, soft computing methodswhich are based on Artificial intelligence are widely used for modeling complicated systems . AdaptiveNero Fuzzy Interference System (ANFIS) is one of the powerful soft computing method which is used inthis Study to predict the value of sonic log. For this aim, data from 3 wells in a field in south of Iran willgathered, data was consisted of parameters like resistivity, gamma ray, photoelectric index (PE),neutron, density and sonic tool output, after normalizing these data in [0 1] interval, ANFISsystem constructed and an initial by trialand error (using small set of data) it concluded that by using PEand neutron optimum prediction will be done (minimum error and input).then main predictionswere generated through two different cases. Case one involved all three wells for training, calibration andverification process. In the second casetwo wells used for training and calibration and the third well wasused for verification,after simulating the ANFIS good coefficient factor and appropriate errorsobtained.(correlation factor more than 0.92 and MSE less than 0.01 for all cases)butfor the second .case,theerror was a little more than case in which all data were combined

کلمات کلیدی:

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